

5 Hand-held device for transferring a film and having an angular application
 member

The invention relates to a hand-held device according to the preamble of claim 1.

10 A hand-held device of this type is described in publication EP 0 507 818 B1. This known hand-held device comprises (see Fig. 9) an application member which extends from the interior to the outside through an opening in the housing and has a swivelling axis-in the form of a curved bulge which is connected to a plate-shaped application body by a lateral longitudinal web. A spatula in the form of an extension extends from
15 the outward-pointing front end of the application body, which spatula forms an application end of the application member for a backing tape which extends outwards from a supply spool rotatably mounted in the housing to the ridge of the spatula where it is deflected and then stretches back inwards to a take-up spool rotatably mounted in the housing. In this known configuration, the spatula is arranged as a front-end
20 extension of the application body such that it is laterally offset from a swivelling axis, namely towards the side with which the hand-held device is to be placed on or applied to a substrate in the operating mode. The swivelling axis is arranged laterally offset on the longitudinal web and is mounted in a correspondingly curved undercut bearing groove of a bearing part in the housing, wherein the gap between the side edges of the
25 bearing groove is greater than the thickness of the longitudinal web. As a result, the thus formed bearing for the application member has a degree of freedom in the peripheral direction which allows a limited lateral to and fro swivelling of the application member relative to the housing and thus adaptation to a laterally inclined substrate surface. This makes it easier to handle the device, wherein the spatula can
30 also adapt to the substrate surface if the substrate is laterally inclined or if the hand-held device is applied at a slant.

As a result of the laterally offset arrangement of the spatula in relation to the swivelling axis, however, this known arrangement has a relatively large and bulky construction caused by the offset. This is undesirable in a hand-held device of this type because a large construction, especially in the region of the housing opening, particularly
5 obstructs the user's view of the application member when the application is to be positioned accurately, for example when applying the coating onto just a certain surface section of the substrate. In addition, the known device has a complicated construction causing complex and costly manufacture and assembly which leads to high production costs. As the hand-held device in question is a typical mass-production product, simple
10 design and assembly is desirable in order to reduce production costs.

The invention is based on the object of designing a hand-held device of the type stated in the initial portion such that the housing of the hand-held device can be formed with a small structure in the application member region. Furthermore, a structure which can
15 be manufactured and assembled inexpensively is also desired in order to reduce the production costs of the hand-held device.

This object is achieved by the features of claim 1. Advantageous developments of the invention are described in the subclaims.

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In the hand-held device according to claim 1 of the invention, the application end of the application member is formed by an extension of the bearing section, the application end and the bearing section enclosing an obtuse angle between them. This makes it possible to achieve a simple and material-saving construction, wherein an additional
25 application body portion laterally offset from the bearing section as present in the generic hand-held device can be omitted. Thus, space is created in which the housing can be formed smaller in the region of the opening, leading to a better view which allows accurate working with the hand-held device, for example for applying the film onto certain areas which can also be relatively small as they are easier to see as a result
30 of the improved view. In doing so, the ergonomic advantage resulting from the application end and its ridge being offset from the swivelling axis of the bearing section is maintained. In the embodiment according to the invention, this is achieved by the bend or curve. A further advantage of the embodiment according to the invention

consists in the fact that, owing to the lower material usage, it is also lighter in weight and is therefore of advantage not only from an ergonomic point of view but also for weight-saving reasons.

- 5 The embodiment according to the invention is particularly suitable for an application member having an application end in the form of a spatula which, as a result of its flat or wedge-shaped advance to a thin ridge, allows its position on the substrate to be accurately visually determined and the film to be accurately applied to the substrate.
- 10 In this type of hand-held device having an application member, the free application end of which is formed by a spatula, a lateral guide for the film is needed in the spatula region to guarantee that the film does not slip away sideways during its sliding circulation at the ridge of the spatula. In this respect, it is known to arrange side guiding webs on both broad sides of the spatula between which the film slides during
- 15 operation.

The object underlying the invention is also achieved by the hand-held device according to independent claim 3; advantageous developments of this device are also described in the affiliated subclaims.

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- As far as independent claim 3 is concerned, the invention is based on the knowledge that sufficient guidance is also guaranteed if just one guiding web is arranged on each broad side of the spatula, both of which webs are however arranged on both sides of the film so that the guiding web on one broad side forms a lateral guide and the other
- 25 guiding web on the other broad side forms a guide on the other side of the film. This not only saves on material; this design also contributes towards improving the view of the application point so that the film can also be applied accurately to the substrate in this aspect of the invention. The spatula with its guiding webs can be formed with a Z-shaped cross-section. In this case, the guiding webs are located in a common transverse
- 30 plane.

Features which lead to a construction which is simple and inexpensive to produce and which guarantee improved pivoting guidance and axial positioning are contained in the further subclaims.

In the hand-held device known from EP 0 507 818 B1, the application member is
5 mounted so as to be freely pivotal in the restricted swivelling region. As a result of gravity, the application member will therefore always adopt a position in which its application member body supporting the spatula points downwards. This impairs handling because the spatula can be slanted in relation to the hand-held device as a whole. This leads to the spatula being applied to the substrate at a lateral inclination,
10 particularly when the film is applied onto an inclined substrate. Only once the application member is pressed onto the substrate is the application member pushed into its position parallel to the substrate. A further disadvantage of the design according to this patent is that, when the application member bears on its swivel stops, a lateral tilting of the spatula during moving of the hand-held device when applying the film can
15 hardly be avoided and this impairs the film application.

The invention is also based on the object of constructing a hand-held device of this type such that it is easier to apply the film.

20 To achieve this object, the swivel movement stops for the application member are formed in a resiliently flexible manner. As a result, the application member can still adapt to positioning differences between the hand-held device and the substrate, also within the region of its lateral restriction, and so a full or linear application is still guaranteed. To achieve this, the swivel movement stops can be formed by spring
25 elements which guarantee the elasticity in the side pivot end region. Particularly advantageous is when the application member is mid-centred in a central swivel position by elastic forces. In such an embodiment, the application member is always located in a position defined with regard to the hand-held device although the lateral freedom of motion is guaranteed and the application member can adapt laterally in this region.

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A particularly simple design is produced when one single spring guarantees the mid-centring, wherein the spring can be arranged on the application member with its free end section positioned on the housing or can be arranged on the housing with its free

end positioned on the application member. Within the framework of the invention, this spring can be a spiral spring or a torsion spring.

The invention and other advantages which can be obtained thereby shall now be explained in more detail with the aid of preferred embodiments and drawings.

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Fig. 1 shows a side view of a hand-held device according to the invention and a sectional view cut along Line I-I in Fig. 2;

Fig. 2 shows the hand-held device in a section cut along Line II-II in Fig. 1;

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Fig. 3 shows an application member of the hand-held device in a perspective view viewed from the front and diagonally downwards,

Fig. 4 shows a perspective illustration of a modified version of an application member;

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Fig. 5 shows a perspective illustration of a further modified configuration of an application member viewed from behind;

Fig. 6 shows a modified configuration of the front end portion of a hand-held device according to the invention in a section cut as per Fig. 2;

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Fig. 7 shows a perspective illustration of the application member in the embodiment according to Fig. 6;

Fig. 8 shows a side view of a further modified configuration of an application member;

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Fig. 9 shows the application member according to Fig. 8 viewed from the left;

Fig. 10 shows a top view of the application member according to Fig. 8;

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Fig. 11 shows a sectional view cut along Line XI-XI in Fig. 10;

Fig. 12 shows a side view of a further modified embodiment of an application member; and

Fig. 13 shows a top view of the application member according to Fig. 12.

5 The main parts of the hand-held device - indicated as a whole as 1 - for transferring a film 2, for example from a backing tape 3, onto a substrate 4 are a housing 5, a supply 6 for the backing tape 3 and/or the film 2 arranged in the housing 5 and an application apparatus 7 having an application member 8 which extends through the housing 5 from the interior to the outside in the region of an opening 9 and an application end 8a sticking out from the housing 5 to which the backing tape 3 and/or the film 2 extends.

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The supply 6 can be formed by a supply spool 11 on which the backing tape 3 and/or the film 2 is wound, wherein, if a backing tape 3 is present, the film 2 is located in the outer side of the tape section 3a extending from the supply spool 11 to the application member 8. If there is a backing tape 3, a take-up spool 13 to which a tape portion 3b extends is also rotatably mounted in the housing; this tape portion runs as a continuing tape portion 3b around a ridge 8b of the application end 8a and extends to the take-up spool 13.

20 The housing 5 is hand-sized and is a flat housing arranged upright in its use position which tapers towards the application member 8 and/or towards the opening 9 in a preferably wedge-shaped manner.

25 The application member 8 consists of a bearing section 8c with which it is pivotally mounted in a swivel bearing 16 in the tapered end portion of the housing 5 and a spatula 8d forming the application end 8d which, in the exemplified embodiment depicted in Fig. 1 to 3, is formed by an extension of the bearing section 8c, and therefore continues from the front end of the bearing section 8c facing the opening 9, passes through the opening 9 and sticks out from the tapered end of the housing 5 with its ridge 8b which extends transversely to the broad sides 14, 15. The spatula 8d has 30 the shape of a wedge, the point or ridge 8b of which is curved. In the middle or front end portion of the spatula 8d, lateral guiding webs 17 are arranged protruding from both wedge surfaces 8e, each of which webs borders a guide groove 18 which is at least

as wide as or wider than the film 2 and the backing tape 3 so that these parts are guided therein.

As can be seen from Fig. 3 in particular, the application end 8a has broader dimensions
5 than the bearing section 8c, wherein its inner end tapers towards the bearing section 8c. The application end 8a can also be thinner than the affiliated measurement of the bearing section 8c, wherein a bulge 19 is provided on at least one side in the transition section to stabilise the application end 8a on the bearing section 8c (Fig. 3).

10 The application end 8a stretches towards the application side or film/tape approach side in a curved or angled manner, the application member 8a and the bearing section 8c enclosing an obtuse angle W of approximately 120° to 170° , in particular about 150° . In doing so, the application end 8a can extend in an application direction A which runs at approximately right angles to the plane of the opening 9, the bearing section 8c
15 enclosing an acute angle with the application direction A.

The housing 5 consists of two housing parts 5a, 5b which can be joined together at a division seam 21 running in the centre or on one side and parallel to the broad sides 14, 15 and are connected to each other by a (not illustrated) closing.

20 In the present exemplified embodiment, the drag bearing 16 is formed by four bearing webs 22, 23 which project inwards from the broadsided side walls of the housing 5 and have bearing shell-shaped bearing recesses 24, 25 on their free ends which are adapted to the bearing section 8c so that the latter is freely rotatably or pivotably mounted therein.

25 The swivelling bearing 16 bears the application member 8 both radially and axially. As to the axial bearing, a radially distanced bearing shoulder 8f can be provided on the bearing section 8c, in this case a bearing ring, in particular on the inner bearing web 23, which engages in a swivel groove 25 in the bearing web 23.

30 Within the concept of the invention, the supply spool 11 and the take-up spool 13 can be arranged behind one another according to Fig. 1 so that the backing tape 3 and/or the film 2 circulates in one plane or they can be arranged next to each other as in Fig. 2

so that - seen from above - the tape sections 12a, 12b enclose an acute angle W_1 between them which is open towards the spools. Between the spools 11, 13, there is provided a drive connection 26 - hinted at in Fig. 2 - which has the following particularity. In each case, the drive connection 26 which is effective between the spools 11, 13 drives the take-up spool independently of whether the effective winding diameters are large or small with such an effective circumferential speed that the circumferential speed of the take-up spool 13 is larger than that of the supply spool 11. During this, an integrated drive slipping guarantees that although the take-up spool 13 always attempts to keep the backing tape 3 and/or the film 2 taut, this tautness is limited by the slipping. This prevents the formation of a loop on the one hand and limits the tensile stress on the other so that the film 2 and the backing tape 3 do not rip. The drive connection 26 can be formed by a sliding coupling, for example by a geared sliding coupling, as is known per se.

In the operating mode, for applying the film 2 onto the substrate 4, the hand-held device 1 is placed manually at an angle W_2 of approximately 45° between the application end 8a and the substrate 4 and with the ridge 8b on the substrate 4 and moves backwards in the direction of arrow 27. In doing so, the tape section 12a is automatically pulled off and wound back up after detachment of the film 2 on the substrate.

The application member 8 has a limited degree of swivelling freedom on both sides (see double-headed arrow 20 in Fig. 1 and 3) which allows the application member 8 to pivot about the swivelling axis 10 and to adapt to the position of the substrate 4 when the hand-held device 1 is applied at an angle or when the hand-held device is placed on a laterally slanted substrate 4, this being effected automatically by the pressing against the substrate 4. Each of the sideways swivelling movements is restricted by a stop 28 which are preferably resiliently flexible so that, when working with the hand-held device 1 in a lateral stop position of the application member 8, the device can still yield elastically and can thus adjust without it standing on a side corner of the ridge 8b which would impair the application of the film. The stops 28 can, for example, be formed by pliable spring elements.

In the current exemplified embodiment, one single spring element 29 is provided which is fixed on the housing and acts upon the application member between two stops which are effective in the swivelling direction (not illustrated) or is arranged on the application member 8 and engages between two stops 28 arranged on the housing 5 which are effective in the peripheral direction. In the embodiment exemplified in Fig. 3, the spring element 29 is a leaf spring which projects, for example, coaxially from the bearing section 8c, here inwards, and is bordered by two stop webs 31 which protrude inwards from the housing parts 5a, 5b, in particular their side walls. When torque is exerted on the application member 8 when pressing the ridge 8b onto the substrate 4, the leaf spring performs a torsion movement so that the application member 8 can follow the lateral swivelling movement, wherein the leaf spring is tensed and moved back into the centred starting position following elimination of the torque. The same function automatically takes place in the case of torque effective in the other swivelling direction. As a result, an elastically effective mid-centring apparatus 32 is realised which resiliently mid-centres the application member 8 in its central position. Consequently, the application member 8 can automatically adjust under the exerted pressure against the restoring elasticity when there is a lateral inclined position between the ridge 8b and the substrate 4, thus making handling simpler, improving film application and reducing the risk of the device lying laterally on one corner of the ridge 8b.

The embodiment exemplified in Fig. 4, in which the same or similar parts are given the same reference numbers, has two features which distinguish it from the exemplified embodiment described above. Firstly, the spring element 29 projects from the bearing section 8c radially rather than axially, the two stop webs 31 being arranged offset on the housing parts 5a, 5b accordingly and laterally bordering the end portion of the spring which is formed as an axially and radially extending leaf spring in this embodiment as well.

Secondly, the application end 8a does not extend from the front end of the bearing section 8c but rather from the central longitudinal section thereof so that free front ends

of the bearing section 8c project on both sides of the bearing section 8c, which front end faces can serve to perform the swivel bearing of the bearing section 8c.

For simplification reasons, axially effective limiting elements for the swivel bearing are not illustrated in this embodiment. These elements can also be formed by a radial engagement in a swivel groove or by the fact that bearing parts protrude beyond the front ends of the bearing section 8c and therefore axially limit them.

In the exemplified embodiment of the application member 8 according to Fig. 5, in which the same or similar parts are given the same reference numbers, the guiding webs 17 are provided on just one side of each broad side of the spatula 8d, namely on alternate sides such that the guiding webs 17 produce a Z-shape with the spatula 8d. This design makes it possible to save on two guiding webs 17. The guidance of the backing tape 3 and/or the film 2 is nonetheless guaranteed because both tape sections 12a, 12b are allocated one guiding web 17 each on the outside.

In the embodiment exemplified by Fig. 5, a further modification of the application member 8 is realised by the application end 8a having a protective wall 33, 34 on the tape approach side 30a and/or the tape return side 30b, which wall is at a distance a from the application end 8a so that the affiliated tape sections 12a, 12b can each extend between the protective wall 33, 34 and the application end 8a. The purpose of the minimum of one protective wall 33, 34 is to protect the backing tape 3 and/or the film 2 from being damaged.

As can be seen from Fig. 5 in particular, the protective wall 33 arranged on the application side or tape approach side 30a of the application member 8 is at a distance b from the ridge 8b extending in the longitudinal direction of the application end 8a. This guarantees that, in the operating mode, the ridge 8b can be pressed onto the substrate 4 with the required pressure, wherein the protective wall 33 is to lie in the space F produced. In contrast to this, only a gap is needed between the other upper protective wall 34 (in the use position) and the ridge 8b to guide the tape through. If, omitting the distance a, this protective wall extends as far as the ridge 8b or even somewhat beyond it, then this creates a prevention measure which prevents the application member 8 being used in a upside-down position, an act which would entail the backing tape 3

being transported in the wrong transporting direction, the hand-held device 1 not working and a defect being produced.

The application apparatus 6 according to the invention is also characterised by a design which is simple and inexpensive to produce and also easy to assemble. The individual parts of the hand-held device 1 are preferably made of plastic, particularly plastic produced by an injection moulding process; the housing parts 5a, 5b and the application member 8 can each be manufactured as one piece.

- 10 In the exemplary embodiment according to Fig. 6 and 7, in which the same or similar parts are given the same reference numbers, the bearing section 8c of the application member 8 is much shorter and is formed by a round bearing flange 8g which is rotatably or swivellably mounted about the rotational axis 10 in a corresponding groove 35 in parts 36 of the housing parts 5a, 5b. Since a swivelling movement is sufficient for ensuring that the application member 8 functions satisfactorily, the flange 8g and the groove 35 do not have to be ring-shaped elements. Rather, it is adequate for these elements to be formed by two segments arranged laterally opposite each other. In this exemplary embodiment, two such flange segments 8g1, 8g2 are provided with preferably rectangular recesses 8h existing between them above and beneath the application end 8a or the spatula 8d. The recesses 8h not only lead to a saving on material and weight but can also form free spaces for the tape sections 3a, 3b. Furthermore, the side surfaces 8i of the flange segments 8g1, 8g2 facing each other can form guiding surfaces for the tape sections 3a, 3b.
- 20
- 25 In this embodiment, the spring element 29 can be directly connected to the spatula 8d or the spatula shaft protruding rearwards beyond the guiding webs 17, the flange 8g or the flange segments 8g1, 8g2 being arranged in the transition section between the spatula shaft and the spring element 29.
- 30 Parts or walls (denoted with 36 and 37) projecting inwards from the side walls 5a, 5b or preferably formed thereon can also serve to bear this application member 8. In this embodiment, the spring element 29 forming a flat spring extends level or parallel to the ridge 8b of the application member 8, the flat spring element 29 engaging into grooves

38 of the affixed crosswalls 37. It is also possible for just one part 37 and one groove 38 to be provided.

5 In this embodiment, the spring element 29 can be longer, thus increasing the elasticity in respect of a reverse bending of the application member 8 after pivotal movement without a change in the length of the device being necessary.

10 The axial positioning is guaranteed by the side walls of the groove positively preventing the application member 8 from being axially displaced. The shell surface 8k of the flange 8g or the shell surface sections of the flange segments 8g1, 8g2 forming a radially effective bearing surface have a preferably cylindrical or cylindrical section shape. The base surface 35a of the groove 35 is also formed accordingly. The axial width of the flange 8g or the flange segments 8g1, 8g2 can be just a few millimetres wide, for example roughly 1 to 4 mm, especially approximately 2 mm. The wall parts 15 36 can be concavely curved on the inner side in line with the curving of the flange segments 8g1, 8g2. The spatula shaft can conform to the width of the spatula 8d with the flange 8g or the flange segments 8g1, 8g2 projecting radially therefrom. The spring element 29 can be laterally tapered relative to the spatula shaft.

20 This embodiment is characterised by a small construction which can be advantageously integrated in the housing, enables the application member to be optimally borne by a spring arrangement and also leads to a large bearing surface.

25 The embodiment exemplified in Figs. 8 to 11, in which the same or similar parts are given the same reference numbers, has several features which distinguish it from the exemplified embodiments described in the foregoing. For one, a support element 41 dimensioned to be broader than the spring element 29 is provided at the free or rear end of the spring element 29 preferably forming a flat spring, said support element 41 having a shape different from a rotational-symmetrical shape relative to the swivelling 30 axis 10 of the bearing section 8c. In the exemplified embodiment, the support element 41 has the shape of a cylindrical positioning pin 41a extending parallel to the ridge 8b, which extends to both sides in relation to the longitudinal central plane 42 running at right angles to the ridge 8b and thus projects from the spring element 29 towards both

sides. At the upper side of the positioning pin 41a an extension 43 can be provided concentrically, which, in the exemplified embodiment, also has the shape of a cylindrical pin projecting slightly upwards.

- 5 At one or both housing parts 5a, 5b recesses are formed (not illustrated) at web walls, which form a form-fit engagement with sections of the support element 41 which are present at one or at both sides of the longitudinal central plane 42. Thereby, the application member 8 is positioned in its central position both in an axial direction and in its peripheral direction. After a torsion movement of the spatula 8d around the
10 longitudinal central axis 10, the application member 8 is automatically returned to its central position by the elastic restoring force of the spring element 29 in the absence of the torsional force.

- For the other, at least one lateral projection 44 is formed at bearing section 8c, which
15 can project from the bearing section 8c in the exemplified embodiment in the top view toward the left-hand side. It is the purpose of the projection 44 to limit swivelling movements of the bearing section 8c around its swivelling axis 10. For this purpose, stop portions (not illustrated) projecting into the track of travel of the projection 44 are formed at the appertaining housing part 5a are formed, against which the projection 44
20 is pushed in the swivelling end positions. As can be recognised especially in Fig. 9, the projection 44 is arranged slightly offset to the bottom in relation to the longitudinal central axis of the bearing section 8c so as to project secantially from the cylindrical bearing section 8c. A second projection 45 can be provided, which projects from the circumference of the bearing section 8c axially offset towards the ridge 8b in relation to
25 the projection 44, preferably towards the same side as the first projection 44. The second projection 45 can serve for the same purpose as the projection 44. The limitation of the swivelling movement of the spatula 8c can be, for example, such that the one projection is pushed against a stop portion at the associated housing part in the one rotational or swivelling direction and the other projection is pushed against an
30 associated stop portion at the appertaining housing part in the other rotational or swivelling direction.

- Moreover, the rims 17a of the guiding webs 17 are shaped as half-circles in the exemplified embodiment according to Figs. 8 to 11, which can best be gathered from Figs. 9 and 10. This improves the guidance of the backing tape 3 or the backing tape sections 3a, 3b, edges thus being avoided, which might impair the side edges of the backing tape 3 in a backing tape 3 slightly laterally offset. Even if the backing tape sections 3a, 3b were to form a bulging loop in the operation mode, the rounding of the rims 17a of the guiding webs 17 improves the insertion of the tape sections 3a, 3b between the guiding webs 17 or the guide groove 18.
- 10 The embodiment exemplified in Figs. 12 and 13, in which also the same or similar parts are given the same reference numbers, distinguishes itself from the exemplified embodiment according to Figs. 8 to 11 primarily in that the spring element 29 is missing and that the support element 41 is formed at the rear end of the cylindrical bearing section 8c. This support element 41 has the shape of a projection 47 projecting
15 towards one side only, which can have the shape of a strip extending transversely whose free end is limited by a plane frontal area 47a forming a rectangular end of the strip. In this exemplified embodiment the projection 47 is positioned on the side of the bearing section 8c which is opposite to the projections 44, 45. The projections 44, 45 are in axial positions one after the other.
- 20 As is illustrated especially by Fig. 12, the axial boundary surfaces 44a, 45a, 47b of the projections 44, 45, 47 can be at right angles to the central axis 10a of the application end 8a. This can be advantageous for technical reasons of shape.
- 25 As already in the exemplified embodiment according to Figs. 8 to 11, the application end 8a is reinforced also in the exemplified embodiment according to Figs. 12 and 13 by a central web 48 which projects from the upper and/or lower wedge surface rearwards in a divergent fashion like a slant ramp.
- 30 In the exemplified embodiments according to Figs. 8 to 13, too, the application member 8 is a die-cast part and is preferably made of plastics.

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Claims

1. A hand-held device (1) for transferring a film (2) of for example adhesive, covering or coloured material onto a substrate (4), said device having a housing (5) in which a film supply is arranged and an application member (8) which extends from the interior to the outside through an opening (9) in the housing (5) and consists of a bearing section (8c) pivotally mounted about a swivelling axis in the housing (5) and an application end (8a), the film (2) extending from the supply (6) to the application member (8),

characterised in that

the application end (8a) extends from the bearing section (8c), and the application end (8a) and the bearing section (8c) enclose an obtuse angle (W) between them which is open towards the film approach side (30a) of the application member (8).

2. A hand-held device according to claim 1,

characterised in that

the application end (8a) is formed by a spatula (8d).

3. A hand-held device (1) for transferring a film (2) of for example adhesive, covering or coloured material onto a substrate (4), said device having a housing (5), in which a supply spool (4) and a take-up spool (13) for the backing tape (3) are rotatably mounted, and having an application member (8) which extends from the interior to the outside through an opening (9) in the housing (5) and consists of a bearing section (8c) mounted in the housing (5) and an application end (8a), the backing tape (3) extending from the supply spool (11) to the application end (8a), running around the ridge (8b) thereof and extending to the take-up spool (13), wherein guides formed by guiding webs (17) are provided for the backing tape (3) on the tape approach side (30a) and the tape return side (30b),

characterised in that

just one guiding web (17) is provided on each of the tape approach side (30a) and the tape return side (30b) of the spatula (8d).

4. A hand-held device according to claim 3,
5 **characterised in that**
two guiding webs (17) are arranged alternately on each outer side of the backing tape (3).
5. A hand-held device according to any one of claims 2 to 4,
10 **characterised in that**
the spatula (8d) has broader dimensions than the associated cross-sectional measurement of the bearing section (8c).
6. A hand-held device according to any one of the preceding claims,
15 **characterised in that**
the obtuse angle (W) is between approximately 120° and 170°, in particular approximately 150°.
7. A hand-held device according to any one of the preceding claims,
20 **characterised in that**
the bearing section (8c) is pivotally mounted about a swivelling axis (10) extending transversely to the plane of the opening (9).
8. A hand-held device according to claim 7,
25 **characterised in that**
the swivelling movement of the application member (8) is restricted by resiliently flexible movement stops (28).
9. A hand-held device according to claim 8,
30 **characterised in that**
the application member (8) is mid-centred by elastic force from both sides.

10. A hand-held device according to claim 8 or 9,
characterised in that
a spring element (29) projects from the application member (8), which element is
confined in the pivot centre position of the application member (8) between swivel
movement stops (28).
11. A hand-held device according to claim 10,
characterised in that
the spring element (29) projects axially or radially and is preferably formed by a
leaf spring.
12. A hand-held device according to any one of the preceding claims,
characterised in that
the bearing section (8c) is formed by a flange (8g) or laterally opposing flange
segments (8g1, 8g2), the peripheral surface or peripheral surface sections of which
form a pivot bearing with mating surfaces on the housing (5).
13. A hand-held device according to any one of claims 2 to 12,
characterised in that
a protective wall (33, 34) is arranged on the tape approach side (30a) of the spatula
(8d) and/or the spatula's tape return side (30b) at a distance (a) from the spatula
(8d), and the backing tape (3) extends between the spatula (8d) and the associated
protective wall (33, 34).
14. A hand-held device according to claim 13,
characterised in that
the protective wall (34) on the tape approach side (30b) of the spatula (34) projects
approximately just as far as the ridge (8b) of the spatula (8d) or the ridge (8b)
protrudes.
15. A hand-held device according to claim 13 or 14,
characterised in that

the protective wall (33, 34) is supported by a guiding web (17) for the backing tape (3).

16. A hand-held device according to any one of claims 2 to 15,
5 **characterised in that**
the spatula (8d) with two guiding webs (17) is formed in a Z-shape.

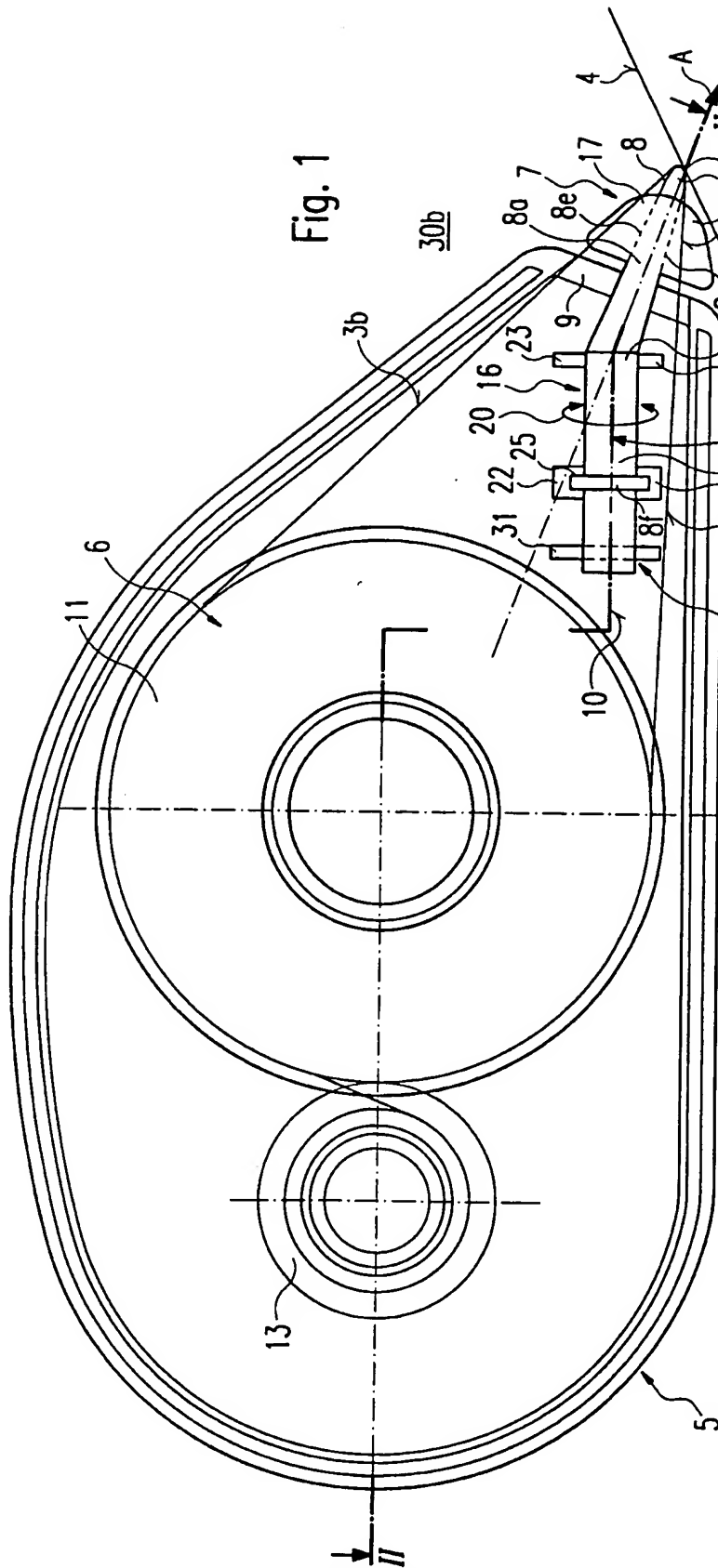


Fig. 1

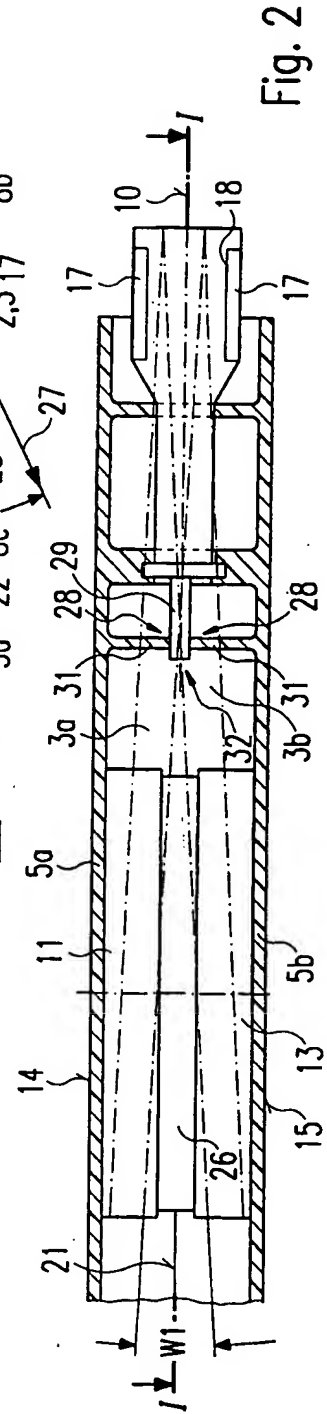
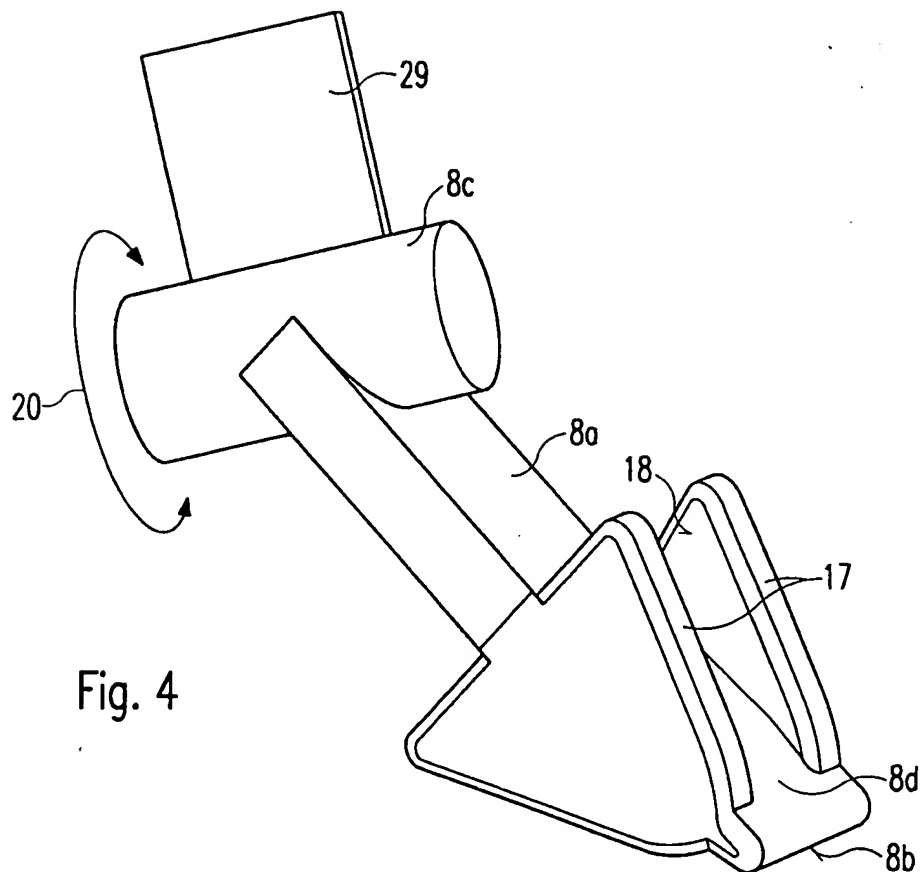
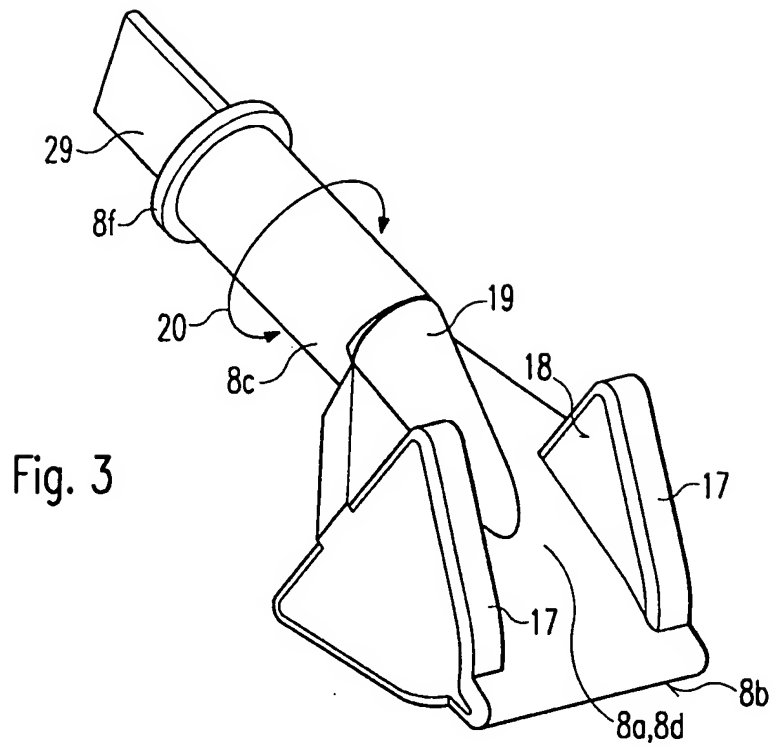
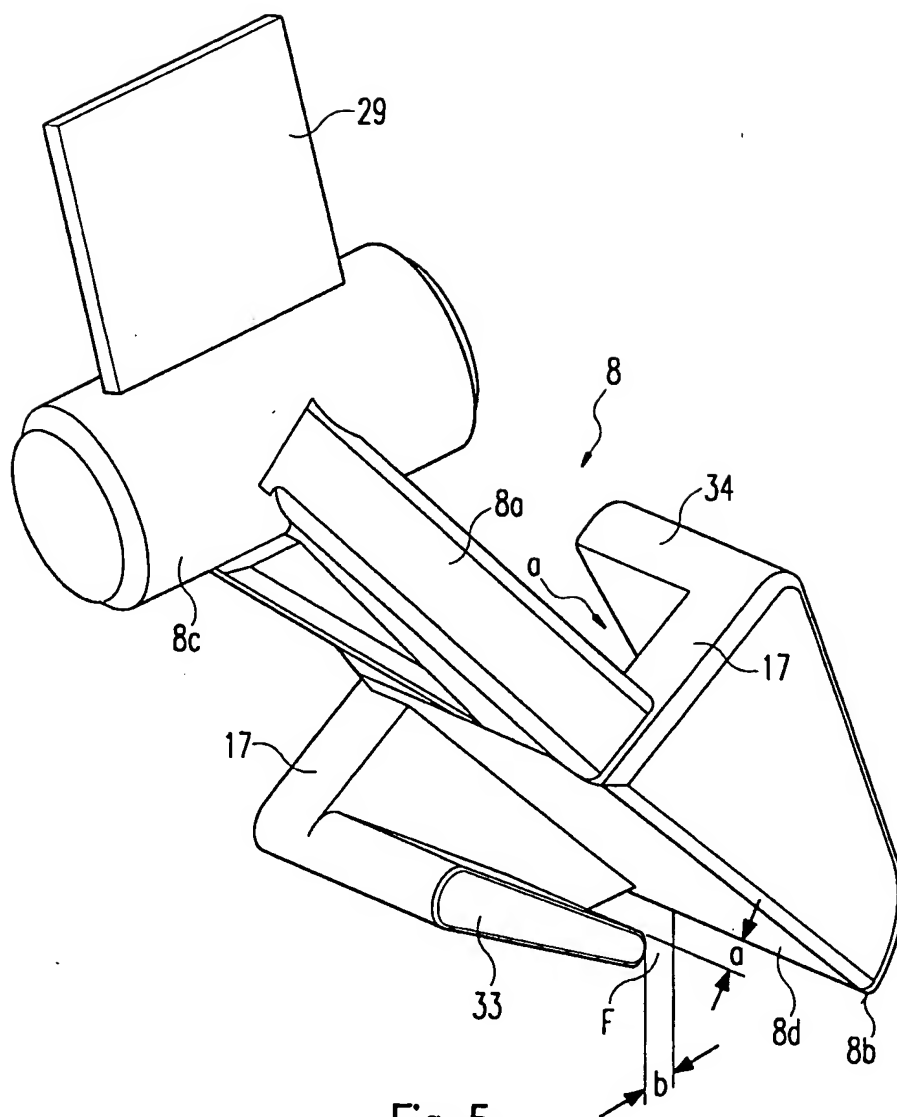


Fig. 2

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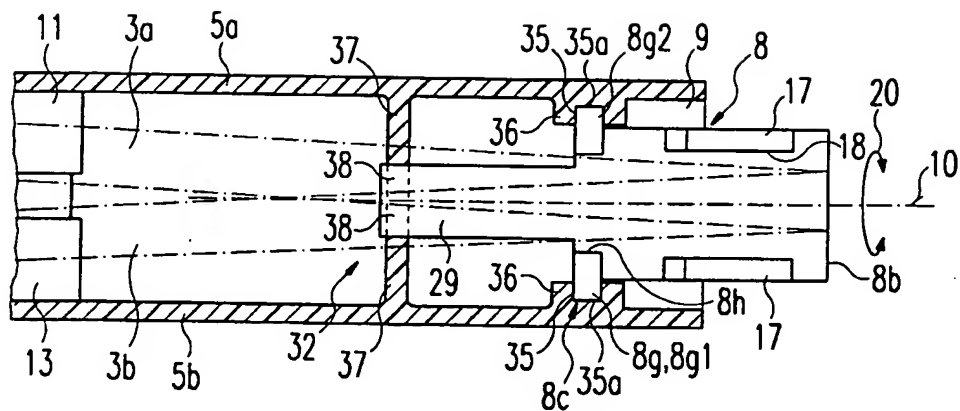


Fig. 6

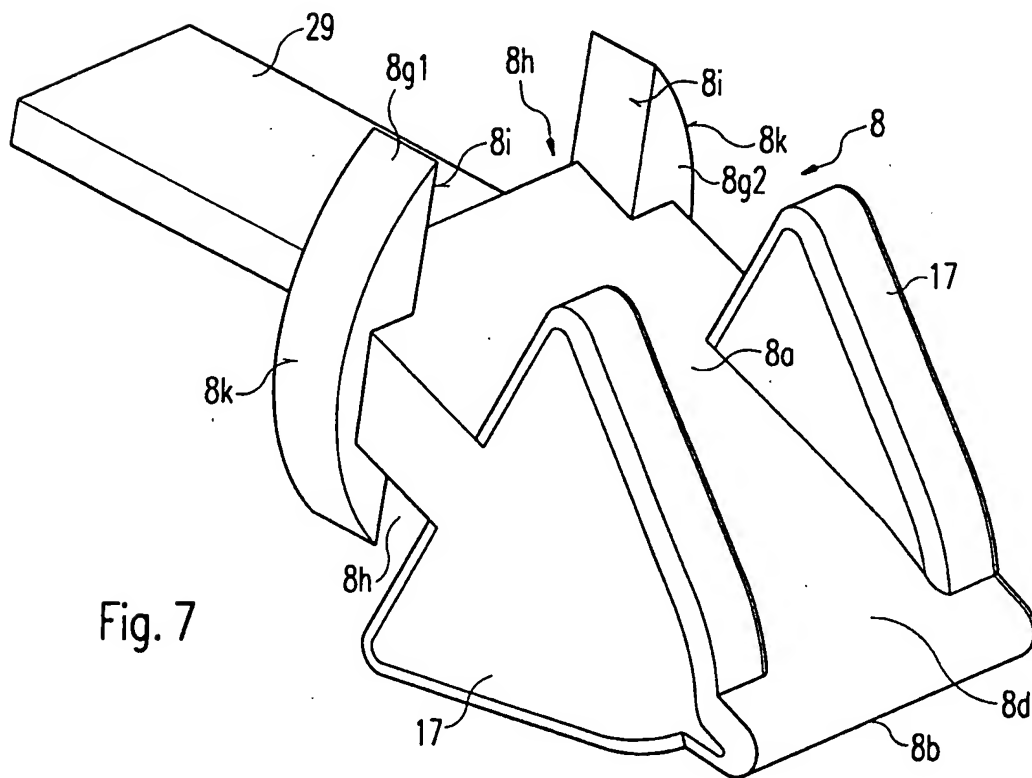
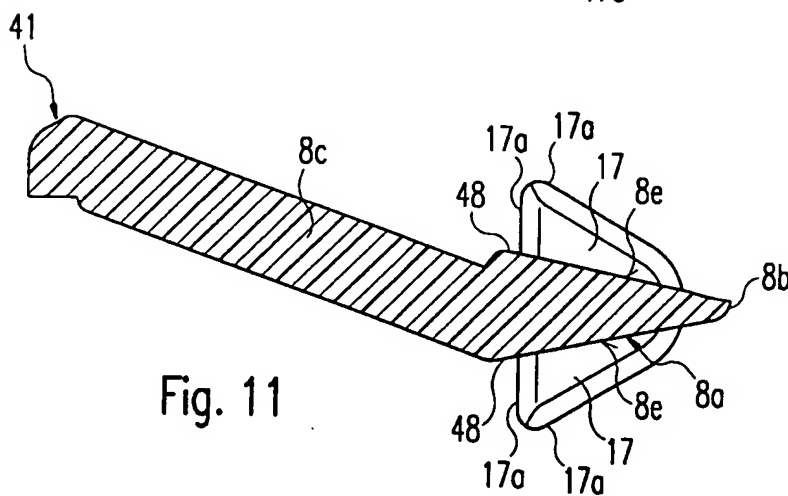
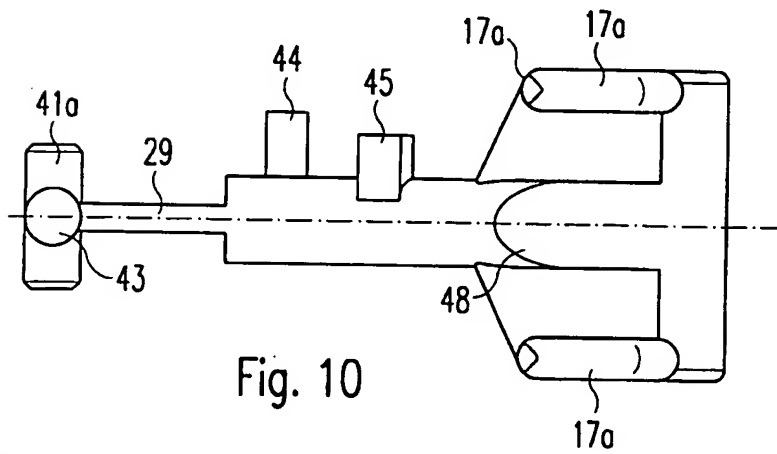
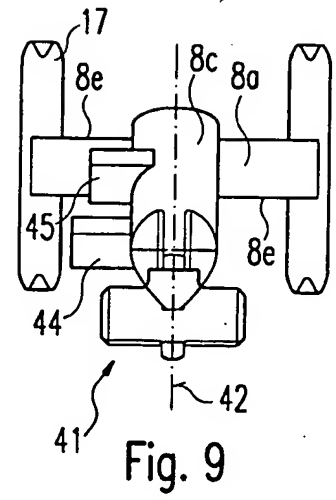
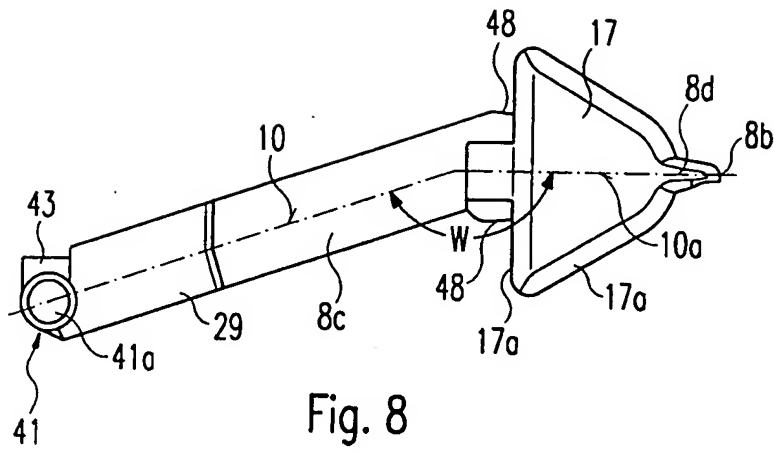


Fig. 7

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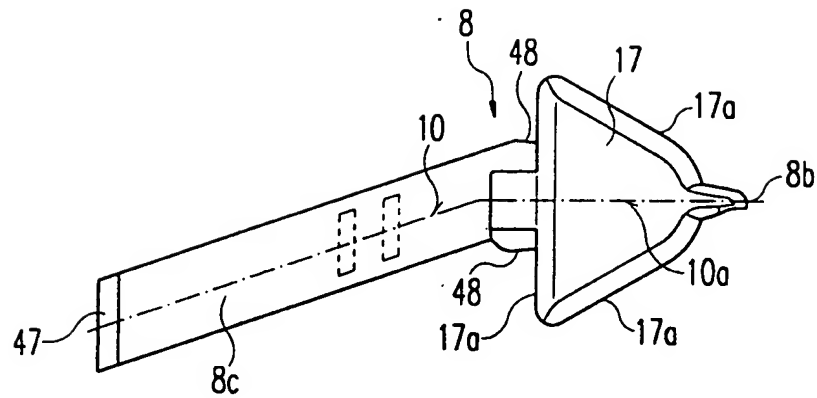


Fig. 12

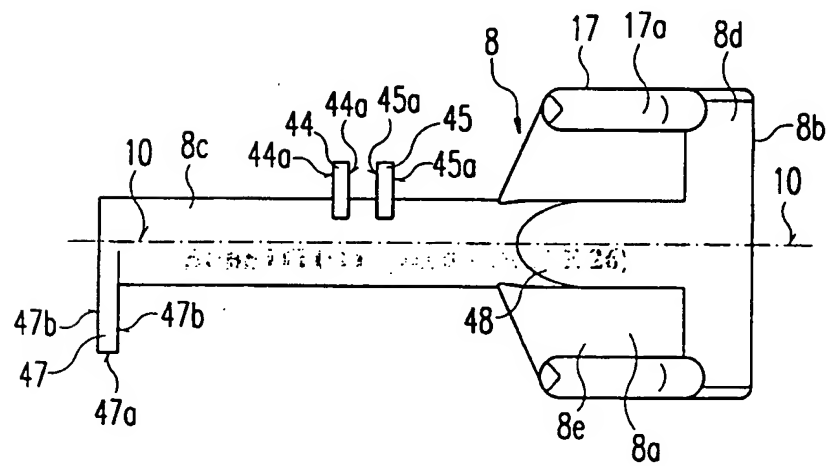


Fig. 13

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/01628

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65H37/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0 936 171 A (FUJICOPIAN CO., LTD.) 18 August 1999 (1999-08-18)	1,2,5-7
A	paragraph '0059! - paragraph '0062!; figure 5	3
X	--- PATENT ABSTRACTS OF JAPAN vol. 1998, no. 12, 31 October 1998 (1998-10-31) -& JP 10 181289 A (FUJICOPIAN CO LTD), 7 July 1998 (1998-07-07) abstract	1,2
X	--- PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) -& JP 11 170776 A (SAKURA COLOR PROD CORP), 29 June 1999 (1999-06-29) abstract; figures 5,6 ---	3
	-/-	

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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

5 July 2001

Date of mailing of the international search report

13/07/2001

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 5 393 368 A (STEVENS) 28 February 1995 (1995-02-28) column 5, line 49 -column 6, line 5; figures 10-14 -----	13

INTERNATIONAL SEARCH REPORT

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